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Wax.

This is an organic product of both animal and vegetable origin, and occurring even as a mineral, though in this case also, its original source is undoubtedly vegetable. The common properties of the substances included under this name are fusibility at a moderate heat; burning with much flame; insolubility in water, and solubility in alkaline solutions, alcohol, and ether; and in most cases a peculiar lustre, to which the name of "waxy" has been given. The most important of these substances is bees-wax, which was for a long time supposed to be simply collected by the bees from flowers, but has been proved by the experiments of Huber and the Hunters, to be secreted by them. It is obtained in the cakes in which it appears in commerce, by boiling the comb from which the honey has been drained or pressed out in water, with frequent stirring, that the wax may not burn. When completely melted, the wax is strained by pressure through hair bags, and received in a vessel of cold water, which serves to cool it and prevent it from sticking. This is repeated two or three times, the bags increasing in fineness, and the wax is finally melted without water, and poured into moulds wider at the top than at the bottom, and wetted to prevent sticking. After being filled the moulds are kept in a warm room till the wax has solidified, as otherwise the cakes are apt to crack in the middle. This process is however tedious and somewhat wasteful, and various attempts have been made to find a more expeditious one, of which Mr. Bagster's appears the most simple. The combs are placed in a conical earthen vessel filled with a mixture of one ounce of nitric acid to a quart of water. This is set over an open fire till the wax is completely melted, when it is removed from the fire and allowed to cool gradually. The product becomes divided into three layers, the upper one pure wax, the lowest chiefly impurities, and the middle containing sufficient wax to be worth adding to the next melting. A marketable wax is thus obtained at a single operation, without straining or pressing. Bees-wax obtained by either of these processes is yellow; has an agreeable, somewhat aromatic odor, and a slight but peculiar taste; is rather soft and unctious, though firm; has a granular fracture, but when cut shows the characteristic waxy lustre; does not adhere to the fingers, or to the teeth when chewed; is rendered soft and tenacious by a moderate heat; melts at about 142° F; and has a specific gravity of 0,960 to 0,965.

Wax is often adulterated with earth, meal, rosin, &c. The first two render it brittle and grayish, and may be detected and separated by melting the wax, when the impurities may be strained out. Rosin makes the fracture smooth and shining instead of granular, and may be dissolved in cold alcohol, while the wax remains untouched, Tallow or suet renders the wax softer, and gives it an unpleasant odor when melted.

Wax is bleached by causing it when melted, to pass through a perforated trough upon the surface of revolving wooden cylinders half immersed in water, by which it is formed into films, which are then placed on webs of canvas raised from the ground, and exposed to the action of the weather until perfectly white. It is, however, generally necessary to repeat the process so as to expose fresh surfaces before the wax can be completely bleached; and care must be taken to finally remove the wax from the webs of canvass only in dry weather, as if it is done in damp weather, it retains a grayish tint, which much impairs its value. The films are finally melted and cast into thin circular cakes, known commercially as "virgin wax." When bleached by means of chlorine or its compounds, the color is destroyed, but the wax is rendered unfit for many purposes, and especially for candles. Another method of bleaching is to add one pound of melted wax, two ounces pulverized nitrate of soda, and stir in by degrees a mixture of one ounce sulphuric acid and nine ounces of water. When all the acid is added, it is allowed to partially cool, and the vessel is then filled up with boiling water, to remove the sulphate of soda and acid; it is then quite white, translucent in thin slices, shining, harder and less unctuous than the yellow, without taste or smell; becomes soft enough to be kneaded at 85° to 95° F., and

fuses at 150° to 155° F., though it will remain liquid at a somewhat lower temperature; by great heat it is partially volatilized and partly decomposed, the vapor burning with a clear bright flame; it is insoluble in water, but slightly soluble in boiling alcohol and ether, which deposite most of it on cooling; easily so in the essential and fixed oils; and can readily be combined with rosin by fusion. It is very frequently adulterated with spermaceti, which destroys its peculiar lustre and renders it softer and more fusible; it is also adulterated with stearine, which may be detected by the odor of fat or tallow evolved when the wax is highly heated, and by the crumbly texture which it imparts.

White wax is composed of two principal substances: myricine, which is grayish white without crystalline texture, fusible at 137° F., and almost insoluble in boiling alcohol; and cerine or cerotic acid, which crystalizes when pure, in delicate needle-like crystals, fuses at 172° F., is much more soluble, constitutes about twenty-two per cent. of the entire weight of the wax, and has for its formula C 54, H 54, O4. Wax also contains four or five per cent. of a substance called ceroleine, which is soft, very soluble in cold alcohol and ether, and melts at 83° F.; and by dry distillation, and by the action of acids and alkalies on cerene and myricine, a large number of peculiar organic compounds may be derived from it. A specimen of bees-wax from Ceylon was found by Mr. Brodie to consist almost exclusively of myricine.

Bees-wax, though produced in almost every country in the temperate and tropic zones, is an article of foreign commerce in comparatively few. The European supply is principally derived from the Baltic, the Levant, Africa, India, and the United States. The Portuguese province of Angola, in Africa, annually sends to Europe about 1,500,000 arrobas or 47,772,000 lbs. Japan also exports much. In the United States it has long been an important article of production and export. The census of 1840 gives the value of the product at $628,303, which would be about 2,000,000 lbs.; that for 1850 states the value of wax and honey to have been 14,853,790 lbs., worth $2,736,606; and that for 1860 gives 1,357,864 lbs. of wax alone. The exports in 1859-60 were 362,474 lbs., worth $131,803. In 1861, 238,553 lbs. were exported from New York. In 1860 more than five-sixths of the exports were to France, England and Brazil.

Besides bees-wax, two kinds of wax of animal origin enter into commerce. The first, the insect wax of China, is found coating the surface of the *Rhus succedaneum* and some other trees. It is the product of a very small white hemipterous insect (*Coccus Sinensis*,) which about the beginning of June climbs up the plant and feeds upon it, depositing the wax upon the branches as a coating which resembles hoar frost. This is scraped off towards the end of August, melted in boiling water, and strained through a cloth. It is white and crystalline, resembling spermaceti, but harder, more brittle, and more fibrous, fuses at 181° F., is but slightly soluble in alcohol or ether, dissolves readily in naptha, and has for its formula C 108, H 108, O 4. It does not contain cerotic acid ready formed, but by fusion with potash is decomposed into a mixture of it with a substance called cerotine (C 54, H 56, O 2.) The Chinese call it fe-la, and employ it for making candles sometimes alone, but more commonly mixed with softer fats and as a coating for other more easily fusible material, in order to prevent guttering. It is often colored red with alkanet root, or green with verdigris. It has been introduced into England for the manufacture of composite candles, and is found to answer the same purpose of bees-wax, of destroying the crystalline structure, or "breaking the grain" of stearic acid. In China it is also employed as a medicine. The French have introduced the insect into Algeria. The price of wax at Ningpo some years ago was 22 to 25 cents per pound, and the annual production was estimated at 400,000 lbs. Another wax of animal origin is the Andaquiss wax of South America, which is produced by a small insect called *avesa*. It melts at 171° F., has a specific gravity of 0,917, and according to M. Lewy contains fifty per cent. of ceroxyline or palm wax, forty-five per cent. of ceroxine or sugarcane wax, and five per cent. of an oily substance.

Of the vegetable waxes, the Japanese, the palm wax of New Granada, and the myrtle wax of the United States are the principal varieties. The first is as white as bleached bees-wax, more brittle, less ductile, and breaks with a smoother and more conchoidal fracture; its specific gravity is rather less; and its melting point is about 127° F. Its chemical composition is not definitely known. The berries yielding it grow in clusters like grapes on trees from fifteen to twenty-five feet high, and when gathered are roughly washed and boiled in water, when the wax rises to the surface, is skimmed off, and formed into cakes weighing about thirty pounds. It is said to require protracted bleaching before it is fit for the market. Small quantities have been shipped to Europe for many years past, but it is only within four or five years that it has been extensively employed for candles, &c. The amount exported is large and continually increasing. In 1859 a single cargo of 1,170,000 lbs. arrived in England. In 1860 the price at Nagasaki was $11 to $12 per pecul, or 8½ to 9¼ cents per pound. The palm wax of New Granada, (ceroxyline) is obtained from the *Ceroxylon andicola*. The scrapings from the exterior of the tree are boiled by the Indians, and the wax rises to the surface. It is grayish white when crude, and after purification by digestion in alcohol is yellowish white, almost insoluble in alcohol, and fuses at 161½° F. The tree has been introduced into Algeria. Carnauba wax is derived from a palm growing in northern Brazil. It is soluble in alcohol and ether, and fuses at 182° F. The ocuba wax of Brazil is derived from kernels of the fruit of several species of *myristica*, especially the M. ocuba. It is yellowish white, soluble in boiling alcohol, and melts at 98° F. The Bicuhiba wax, also from Brazil, comes from the *M. Bicuhiba*, is yellowish white, soluble in boiling alcohol, and

fusible at 95° F. The myrtle wax, which for many years has been an article of commerce in the United States, also known as "candleberry wax" and as "bayberry tallow," occurs as an incrustation on the berries of the wax myrtle or bayberry. The berries are enclosed in bags of coarse cloth, and kept immersed in boiling water until the wax collects on the surface, which is then cast into moulds and sold without further preparation. It varies in color from grayish yellow to deep green, has a balsamic and slightly aromatic odor, a specific gravity of 1,004 to 1.006, fuses between 117° and 120° F., and is much harder and more brittle than bees-wax. It is composed, according to Mr. G. E. Moore, of one-fifth part of a substance called palmatine, which exists in palm oil, Japanese wax, &c., and four-fifths of palmitic acid, with a small quantity of lauric acid. This wax appears, as a candle-making material, to be worthy of more attention than it has hitherto received. Its illuminating power is scarcely inferior to that of the best bees-wax; it hardly costs one quarter as much, can be obtained more free from color, is easily bleached, and from its superior hardness can be cast instead of being moulded by hand like bees-wax. The plant grows abundantly on the poorest soils along the coast of New England. Plantations of it have long existed in Europe, and its cultivation has lately been tried in Algeria. The berries of *myrica quercifolia*, natives of the Cape of Good Hope, growing on dry sandy plains along the coast, also yield a greenish wax, which can be bleached, and when made into candles gives a very good light. The sugar cane yields a wax called cerosine, which is soluble in boiling alcohol and slightly so in boiling ether. The sorghum also secretes on the surface of the native stalks a white resinous powder, from which candles could be made. A waxy substance called suberine has likewise been obtained from cork.

Several mineral substances resemble wax in physical properties, the principal of which are ozocerite and hatchettine. The principal use of the different kinds of wax are: 1, for the manufacture of candles, either from pure wax, the consumption of which is especially great in Roman Catholic countries, or of wax mixed with stearic acid, palm oil, &c., as in composite candles; to which purpose every variety, whether animal, vegetable, or mineral seems to have been applied in different countries; 2, as a vehicle for colors in certain kinds of painting, and as a protecting coating for them; 3, for giving a polish to furniture and floors, for both which purposes it is generally used in France and other parts of southern Europe; 4, in medicine, in which bees-wax is employed as an internal remedy against diarrhœa and dysentery, as an ingredient in almost all ointments, cerates and plasters, and also for filling carious teeth; 5, as a lute or cement of much utility for chemical and other purposes, and also as an impervious coating for vessels formed of porous materials; 6, as a material for modelling; and 7, formerly for seals instead of sealing wax.

☞ SEND us the names of bee-keepers, with their Post Office address.

For the American Bee Journal.

MR. EDITOR:—In submitting the following practical experience in apiculture to you (and if thought by you worthy of a place in the JOURNAL, to the readers thereof,) I wish to be regarded as a mere "novice" in bee-culture. My sole object is, *first*, to communicate a few facts learned by practical experience during the present season; *secondly*, to tell how I learned these facts; and, *thirdly*, to invite comments by experienced apiarians.

First.—I learned the fact that a good colony of bees can be started and established by the use of a very small piece brood comb with eggs and young larvæ in it, two or three sheets of dry clean comb, and a quart or more of stranger worker bees. And, *second*,

That almost any number of young queens can be reared, by starting a few such colonies at the proper season of the year; and that artificial swarming can be successfully managed and carried to any desirable extent by this mode of management with reasonable care on the part of the apiarian.

I learned these facts by practical experience, as follows:

On the 17th of April last, on examining one of my old colonies of bees, I found drone brood sealed or capped over; and I at once went to one of my neighbors, and by his permission and assistance, cut out of one of his Italian colonies a piece of brood comb about three by four inches square, with eggs and young larvæ in it. After taking it home, I divided it into two pieces, which I fastened into two sheets of dry comb—one piece of brood comb in each sheet of dry comb. Thus prepared, I placed them into two empty hives; and after putting in each hive two other dry sheets of comb, one on each side of the comb in which the brood had been inserted, I filled the remaining spaces in the hives with empty frames. Having them thus prepared, I removed two of my strongest colonies from their stands to other stands, and placed my empty hives prepared as before stated on the stands from which I had just removed those strong colonies. This was done about two o'clock in the afternoon of a warm day, when my bees were flying freely.

The result was that, after a few minutes confusion, the incoming bees took possession of the hives on their old stands, and after the first evening all seemed harmonious and happy.

On the 11th day thereafter, being the 28th of April, I opened these young colonies and found in one *two* and in the other *four* new and perfect queen cells, four of which I removed and used as a basis for other artificial colonies, and also started another colony with brood comb in the same manner as on the 17th. This reared five queens, which I used, as before, in starting artificial colonies.

In this manner I have started, and by supplying one or two that seemed weak with full brood combs after they had fertile queens, have made several good Italian colonies of bees. I have also secured colonies which, without an exception, have nice straight combs.

If any reader of this communication knows

of any better or more certain way of rearing and keeping a supply of young queens on hand, and at the same time and by the same means increasing the number of colonies and securing uniform straight combs, I should be pleased to have the same made known to all "novices" in bee-culture. BELMONT.

[For the American Bee Journal]

Bee-culture in Chili.

In Chili we have the Italian bees exclusively, the first importation having been made from Germany in 1852. They have increased so largely and rapidly, that the production of honey last year, in the single province of Santiago, exceeded 8000 cwt. The honey is peculiarly aromatic, speedily becomes hard and white as pure tallow, and sells at about six dollars per hundred weight. Immense fields of what is here called Alfalfa or Spanish clover, and elsewhere esparcette (*Onobrychis sativa*) cultivated for cattle food, furnishes the bees with inexhaustible pasturage, from which their hives are quickly filled with stores of honey and pollen. The annual yield already far exceeds the home demand, but no arrangements have yet been made to supply foreign markets.

It does not rain here during summer or about eight months of the year. In the remaining four months the weather is changeable, alternating between sunshine and rain, with warm and humid air. These are our winter months, the thermometer then rarely sinks below 10° C; and the bees gather pollen and honey nearly all the time. Besides the alfalfa already mentioned, the bees forage on lucerne grass, the blossoms of nearly all the varieties of fruit trees cultivated in Europe, the almond trees especially, and innumerable alpine flowers and plants.

Our bees are not subject to any disease, with the sole exception of a kind of vertigo at some seasons. Foulbrood has never been known to affect any stocks. The largest apiaries are in the neighborhood of Santiago, where there are extensive orchards of apple, pear, peach, and fig trees; and five thousand hives in one collection, belonging to one proprietor, are not uncommon in this and other neighborhoods. The multiplication of stock is very rapid, as the production of brood is enormously great. The individual hives, however, are never unusually populous, as in consequence of the never-ceasing labors of the bees the year round, the average duration of life is brief. About thirty thousand hives are kept in a circuit of three or four miles around Santiago. My own apiary consists of 252 stocks in single and double hives, two pavilions containing 54 colonies, and seven outhouses with 96 hives each or 672 together—making an aggregate of 978 stocks. All these are protected by thatched roofs. I think I have the largest pavilion, and certainly the greatest number of Dzierzon hives in this country. A. TAUBE.

Feb. 5. 1867. *Apiarian.*

☞ SEND us the names of bee-keepers, with their Post Office address.

For the American Bee Journal.

A box hive sent out a swarm May 17th and a second swarm May 30th—That evening piping in both notes was distinctly heard in the hive.

On the 28th a large comb with much sealed brood and two queen cells, was taken from another hive for a purpose which failed. The next afternoon, after having lain out on a bench about 30 hours, worker brood was seen cutting out, and to save it the comb was placed on the top of the box hive, and covered with a glass box, first opening some of the communicating holes; a few dozen bees came up to take care of the comb, honey was deposited in some empty cells and a special guard set over the queen cells.

On the morning of the 31st, a well developed princess came up from the hive below, and remained in the upper glass box a couple of hours. She was in constant motion upon and under the comb, but shewed no disposition to approach the queen cells. But as she passed over the comb she frequently stopped where some hatching bee was striving to get out of its cell, pushed her long fore legs down into the cell and lifted out its struggling tenant. I saw this done in twenty instances. The workers paid no attention to the hatching bees. Soon after the senior princess came up, the workers began to bite open the mouth of one of the queen cells until there was an orifice large enough for her to come out. She could be seen moving in the cell, but was confined to it by the worker guard. Being called off for half an hour, I found that she had escaped from the cell, and was being chased round the floor of the box, bitten by the bees, and squealing loudly. Presently she ran under the comb followed by several workers. During this time the senior princess continued to move over the comb, paying no apparent attention to the younger princess, until after a little while she also went under the comb. For the ten minutes that I could remain neither of them came out. There was no piping heard that day, and the hive sent out no third swarm.

Have any of your correspondents who use observing hives ever seen the queen helping out the hatching bees? And why was there no piping heard in the hive when it contained two living princesses?

A correspondent in the July number mentions sticks of rotten wood as the best material for smoking bees. Not being able to use a cigar just now, I have a substitute which I find both the most efficient and convenient smoker. A piece of half worn cotton or linen goods about a foot square, is made into a tolerably tight roll and well tied or tacked in three or four places, when one end is fairly lighted, it will continue to burn until consumed, unless carefully put out. With this I open hives, take out frames and perform all usual operations without protection for hands or face. The material is plentiful in every house, the roll is made in a moment, lasts a long time, and is always ready.

RICHMOND, VA. TYRO.

[For the American Bee Journal.]

Experience of a Novice in Bee-Keeping.

No. 7.

DEAR BEE JOURNAL:—I do not know how I can better interest your readers in this number than by answering at length a number of queries from a correspondent. He says:

"In perusing the BEE JOURNAL I observed your article written on bee-culture, and as I am a bee-keeper, and a sort of novice at that, I thought I would take the liberty of writing to you.

First.—The main question I wish to know is this: Do bees build combs *true* in the Langstroth hive? Some say that bees will not build combs true in any frame unless there is a piece of guide comb put in."

I have never used guide combs, and have never had a hive that I could not remove the combs from readily, although in one or two cases I have found it necessary to bend the combs slightly when they had started them a little off. And as I always swarm artificially, I usually give the new swarm two frames ready filled from the old stock, as a start.

In the improved form of the American hive, which I am using now, I have yet to learn of a failure in that respect, without any care whatever.

"*Second.*—What do you think of the Italians?"

I have thus far found them fully up to all that is claimed for them, with perhaps the single exception of red clover. It is true they are found on it to some extent, but in the last two seasons, one of which was very wet and this one very dry, I have not been able to discover any increase in weight of their hives while it was in bloom, and it is quite plenty about here.

"*Third.*—Do you think they can be kept to much advantage where the black bee exists in great numbers?

If you are going to allow your bees to swarm naturally, perhaps not. But if you practice artificial swarming (by far the most profitable way), I think I can show you clearly that there is no difficulty at all, although there is so much said and written to the contrary.

One person in particular, a Mr. T. B. Miner, editor of the Rural American, I think quite needlessly exposes his ignorance or something worse, by making the assertion that the Italian bees *cannot* be kept pure unless on an island or similar place, and that all who claim to the contrary have queens for sale and are cheats and swindlers.

To illustrate, we will suppose that a person gets a pure queen to start with, that there are a hundred or more black swarms in a circuit of a mile or two around him, and that he has a dozen or more hives of black bees himself. The first year he can easily supply them all with queens from the original stock, which cannot any of them be less than hybrid, equally as valuable as honey producers as the old queen. And so on, as long as she lives (three or four years), he can easily raise all his queens from her; and it would be very strange indeed if some of her progeny did not mate with Italian drones, and be prepared to take her place to furnish queens, as all the drones produced thus far must be pure Italians, besides coming out two or three weeks earlier than the common ones in the spring.

Simply bear in mind that *so long as we raise all our queens from one of known purity, we can have nothing more impure than hybrids*, and very soon a large proportion as pure as the original.

In my case I had three pure queens the first year, out of about eighteen raised; and one of them produced a progeny that, besides having the three bands fully marked, were even brighter colored than those from the original queen. And as my old queen was lost last winter, I selected this one, from which I have raised all my queens this year. I think it even possible to raise one thousand queens from one pure one in a single year, if necessary.

Another fact: although we have black bees on all sides, some only a few rods away, I have not been able yet to find one whose queen had met any of my drones. At least the worker progeny does not show it; and it is my opinion that neither queens nor drones ordinarily go as far from the hive as the few cases we have heard of, when queens were raised at a season of the year when drones were very scarce.

The present year when we had drones in great number, the young queens made but few excursions, and were gone but a short time in being fertilized, in comparison with last year, when we had but few drones.

"*Fourth.*—There is so much written about this one and that one having impure queens, &c., that I hardly know whether to purchase any or not. Langstroth says that all *pure* Italian workers show *three* distinct yellow bands, and Quinby says that they show only *one* when empty. Now, do your Italian bees show *three* yellow bands when empty, or do they show only *one*?"

My Italians assuredly show *three* yellow bands at all times; and not only the pure ones, but many of the hybrids also; so much so that I should call some of them pure were it not for their temper.

"*Fifth.*—Professor Varro thinks Quinby's stock improve, and Quinby says his stock of Italian bees is from Langstroth's. According to that neither had pure stock. For my part I hardly know where to get a pure Italian queen. What is your opinion as to where I can get the genuine Italian bee?"

I should advise you to send to Mr. Langstroth by all means. Not only that he is *perfect'y* reliable and trustworthy in every respect, but that I think all bee-keepers should remember him with gratitude, as being the one who alone introduced movable frames and raised bee-keeping from what it was a few years ago to its present advanced state. Let each one strive if possible not to have it said, as it has been many times before, that our great original inventors never receive the credit or benefit of their inventions. Who that has read Langstroth's

writings can for a moment doubt his sincerity or his candor?

"*Sixth.*—I was on the point of sending this spring to W. A. Flanders for a queen, but I thought I would try some of his Bee-Charm first. I found it to be a genuine —— humbug! And his book *lied* to *me* in *several* instances. So I thought that if a man had such an avaricious disposition for money as to resort to such means to get it, and humbug the bee-keeping community on such a simple thing as that, he might be induced to humbug some one on Italian queens. Hence I passed him by as an impostor, and think I have a good reason for doing so. Don't you?"

Of course my correspondent had no idea of the above being in print; but it seems to me that the sooner the science of bee-keeping is divested of all the patent medicine humbuging quackery the better. It is subjecting us all to ridicule and derision.

"*Seventh.*—Well, how have your bees done this season? Did your Italians swarm any earlier than your black bees?"

As before mentioned, my bees were all swarmed artificially, with one exception; and as that one exception has a history of itself, we will reserve it for the next number.

With kind regards to all bee-keeping friends, I still remain, A NOVICE.

MEDINA, OHIO.

P. S.—In my article last month the first P. S. was intended as a question, and should have been "Will either interfere," &c., instead of "either will," &c.

[For the American Bee Journal.]

Wintering Bees.

I have been a bee-keeper for over forty years, and did think of giving my experience for the last eight, but it would make my communication too long. I will therefore confine myself to a short sketch on wintering bees.

If a man loses his bees in wintering, it is for want of knowledge, or neglect on his part. I lost four stands this spring, through my own carelessness. These are the only bees that I have lost in wintering for the last eight years. On the 18th of February (it being a fine day, and the snow gone,) I took my bees, now numbering fifty-seven stands, out of my bee-house. Having flown well through the day, I returned them to the bee-house at evening, Nine of the number being light, I set them by themselves. Four out of the nine were lost by my neglecting to give them honey in due time.

My bee-house for wintering is built of logs laid up double, with a space of about five inches between. This space is filled with dirt tightly packed in. The height is about six feet, but should be six feet and a half. Logs are laid across the top, and a little straw put on to keep the dirt from falling through, then covered with about six inches of dirt. The house stands lengthwise, north and south, with the door in the south end, and a hole in the north end down level with the floor, three feet wide and six inches deep. This hole and the door are left open until the floor is well frozen, which keeps the house dry, and the combs will not mould.

There are two air chambers sunk below the surface of the floor; one across through the middle, the other at the end. They are eighteen inches wide and three feet deep. These chambers are covered with lath, so that the air can come up freely. There is an inch tube running in on each side of the middle chamber, and one at the end of the end chamber. There are two chimneys, each six inches square.

I keep my hives well ventilated at the top, with the lower entrance closed.

There is no humbug about this matter, neither is there any patent right. ROBERT JONES.

CEDARVILLE, ILL.

The Carder Bee.

The insects popularly known as Carder Bees are so called because they prepare the materials for their nest in a manner similar to that which is employed in carding cotton, wool, or in heckling flax.

Several species of Carder Bees are known, all belonging to that familiar group of insects called humble-bees. Among these, as among humble-bees in general, there is a great variety of color, so that the same species has been called by different names, even by skilled entomologists. For example, in Kirby's admirable monograph of British bees, no less than seven varieties of the commonest species of Carder Bee (*Bombus muscorum*) are given as separate species.

That such mistakes should be made is no matter of surprise when we take into consideration the capriciousness with which the colors of this species are distributed among its members. Among the queen bees, the abdomen is sometimes marked with rings of yellow, black, and red, and is sometimes red at the base and tip and black in the middle. The worker has usually a yellowish abdomen with one or two blackish bands, but in some cases the whole abdomen is black, except a small patch on the base and another at the top. The male bee has generally the abdomen colored like the first mentioned example of the worker, but sometimes it is wholly black, and in many cases it is black except the tip, which is dun. Indeed, these insects are so extremely variable that the only method of determining their true arrangement is by taking a great number of nests, breeding the inmates, and subjecting them not only to careful examination, but also to dissection of their internal anatomy.

The specific title "muscorum," *i. e.* "of the mosses," which is given to this bee, is due to the material of which the nest is usually made. It was generally thought to be made exclusively of moss, but is, in fact, constructed of various substances according to locality. Mr. F. Smith mentions several instances where the bees had made use of very singular and unexpected materials. In one case bees were seen flying into a stable through the latticed window, col-

lecting the little hairs that had fallen from the horses during the process of currying, making them up into bundles, and flying off with them. On being watched carefully, one of the bees was seen to alight on some grass not very far from the stable, and among the grass was found the nest, which was composed entirely of horse-hair. Unfortunately this remarkable nest was destroyed before it was completed.

Another very interesting deviation from the usual economy of the moss-building bees was observed by Dr. William Bell. During the summer of 1854, a robin built its nest in the porch of his cottage at Putney. Some time after this had been observed, a humble-bee took possession of the nest and adapted it to her own purpose. He was unfortunately not able to identify the species by capturing a specimen, the nest having been destroyed; but Dr. Bell had seen the bee on one occasion and observed that it was black, with yellow bands, probably the *Bombus pratorum*.

Moss, however, is the favorite material of the Carder Bees, and wherever it can be obtained they will use no other substance, though in places where it is scarce, or not to be found, they employ leaves, grass, or any other suitable material. Whatever may be the material, the bee always takes great pains to disentangle the fibres in order to be able to weave them in a systematic manner in the nest. This process is conducted by means of the legs, the bee seizing the fibre with her fore feet, and passing it under her body by means of the remaining pairs of legs, forming it, as she does so, into a small bundle which can be easily carried off.

The object of the moss and other substances is very simple. The Carder Bees do not build their nests, like those of many humble-bees, beneath the surface of the ground, but upon it, choosing a spot where there is a slight hollow of an inch or two in depth. The moss is then woven so as to form a domed cover to the cells, this dome being of variable dimensions, according to the number of cells which it covers, but seldom reaching more than three or four inches in height above the ground. As in very rainy weather this mossy dome would not be water-proof, the insects line it with a very coarse, dark-colored wax, similar to that of which the breeding cells are made.

The entrance to the nest is always at the bottom, for although the insects will sometimes make an opening at the top, they seem to do so merely for the purpose of admitting air and warmth, and never enter or leave the nest through it, closing it at night or in rainy weather. Generally a kind of tunnel or arched entrance leads into the nest, like the passage into an Esquimaux snow-house, an edifice to which the moss-covered dome of the Carder Bee bears no small resemblance.

The best time to search for these bees is in the hay-making season, when the mowers often come upon them during their work, and a promise of some small reward will probably produce a tolerable harvest of nests.

SEND us the names of Bee-keepers, with their Post Office address.

[For the American Bee Journal.]

"Eureka! Eureka! Nihil," &c.

"Oh, blood and thunder! Oh, blood and wounds!

MR. EDITOR:—I notice in your issue for September an article in criticism of my remarks on Mr. Allen's hive. This is not the first time that would-be great men have quoted Greek and Latin to appear learned; nor the last that muddy intellects will try to cover their ignorance by using big words. What profound knowledge of the old Greek and Roman authors does this counterfeit Roman exhibit! How adroitly he lugs in their sayings upon other topics, to help him on the subject of bees! Well, plain English is good enough for me, and I will try and make him understand it.

He says "Home" is a very wrong name for Mr. Allen's hive, since it is so constructed as to kill scores of common bees and prove the inevitable death of the tenacious Italians. In fact the poor things cannot get out of the way, by going to the other side. The hive is a perfect death trap that must slaughter a part of one kind and the whole of another sort of bees having the misfortune to be put therein.

And all this in the face of the fact that I explained Mr. Allen's method to be especially calculated to prevent such an occurrence, by stating that the frames were withdrawn through the sides of the holder, thus directly taking away the contiguous sides of the comb from each other, or rather removing them further apart, though already sufficiently so when remaining stationery.

By the old method of lifting the frames directly out, bees are often killed* and honey cells torn open by abrasion of comb; but if ordinary care is used this cannot happen with Mr. Allen's hive. It takes a genius to thus misinterpret language and set reason and common sense at defiance. Such an one would see right through a mill stone, and prove by a mathematical demonstration that the moon is made of green cheese. I have seen Mr. Allen take out and replace all the frames of a "Home" well filled with Italian bees and honey, without crushing a single bee, or tearing open a cell. And he did it quickly and easily. No extra care was taken to avoid injuring the bees, though of course he might have destroyed many by setting the hive on fire or knocking it to pieces with an axe. But with common prudence he could not hurt the bees, since by his arrangement of frames, they not only have room enough to live securely, but also to work effectively.

The cast iron of which the frame holder is made troubles Varro.

My incidental allusion to the material best for making Mr. Allen's holder was not, as any body can see, the point I was making. Its design, arrangement, isolation from the outside, and application, were the things I set forth and commended. And a writer who thus quibbles, by putting an incidental for the main subject is either ignorant of the first principles of

* * This does not occur when the operation is properly performed. ED.

reasoning or deliberately misstates. Varro says that expert bee-keepers need nothing to space the frames, &c. But how if all bee-keepers should not be thus expert? All men are not born great men; nor do all who engage in the cultivation of bees at once overleap the stars, or reach at a single bound like this the very pinnacle of Bee-dom. Most of us are common folks, and need some instruction to perform our work well. And not having this very learned and luminous savant always at hand to infallibly point out the right way, are fain to invoke other aid. And such aid is given in Mr. Allen's hive, by the due arrangement and security of the frames, which neither hang swinging and sliding about, nor kill the industrious denizens of the hive, either in being taken out or returned, by the rubbing together of their sides.

But enough for the present. If I have failed to make myself understood by this very learned Professor, who I fear has pored over dead languages till he is blind to live facts, I at least hope to be intelligible to such as understand our mother tongue and use common sense in its interpretation.

Not Anonymous. WM. A. BENNETT.
SYRACUSE, Sept. 5. 1867.

Translated for the American Bee Journal.

The Carpenter Bee.

The splendid South African insect, the Carpenter Bee(*Xylocopa Capensis*)is a wood-boxer of great power. She sets about her work in a curiously systematic manner, each action being exactly calculated, nothing left to chance, and all useless labor saved.

When the insect has fixed upon a piece of wood that suits her purpose, usually the trunk or branch of a dead tree, an old post, or a piece of wooden railing, she bores a circular hole about an inch-and-a-half in length, and large enough to admit her to pass. Suddenly she turns at an angle, drives her tunnel parallel with the grain of the wood, and makes a burrow several inches in length. None of the chips and fragments are wasted, but are carried aside and carefully stored up in some secure place, sheltered from the action of the wind.

The tunnel having now been completed, the industrious insect seeks rest in change of employment, and sets off in search of honey and pollen. With these materials she makes a little heap at the bottom of the tunnel, and deposits an egg upon the food which she has so carefully stored.

Having now shown her powers as a burrower and purveyor, she exhibits her skill as a builder, and proceeds to construct, above the enclosed egg, a ceiling, which shall be also the floor of another cell. For this purpose, she goes off to her store of chips, and fixes them in a ring above the heap of pollen, cementing them together with a glutinous substance, which is probably secreted by herself. A second ring is then placed inside the first, and in this manner the insect proceeds until she has made a nearly flat ceiling of concentric rings. The ceiling bears some resemblance to the operculum of the common water snail. The ceilings constructed by the ant are made on similar principles. The thickness of each ceiling is about equal to that of a penny.

The number of cells is extremely variable, but on the average each tunnel contains seven or eight, and the insect certainly makes more than one tunnel. As each tunnel generally exceeds a foot in length, and the diameter is large enough to admit the passage of the wide-bodied insect that makes it, the amount of labor performed by the bee is truly wonderful. The jaws are the only boring instruments used, and though they are strong and sharp, they scarcely seem to be adequate to the work for which they are destined. When all is completed the entrance is closed, with a barrier formed of the same substance and in the same manner as the ceilings.

Several species of Xylocopa are indigenous to the United States. The Virginia Carpenter bee is as large as the Humble-bee, but not covered so densely with hair. The larvæ strongly resemble those of the Humble-bee, though less bulky in body and more pointed at the ends.

BEES SETTLING ON A MAN'S HAT!—On Monday last, while some men were engaged on the highway in our village, a swarm of bees were heard above their heads. They at once set their wits at work to capture them. Old pans were beaten, tea bells were rung, bushes held up for them to light on, but nothing attracted them to "come down," till the queen bee espied a straw hat on the head of Mr. Daniel Callahan, one of the workmen on the highway. As soon as the queen lit on his hat the whole swarm followed, and in a minute Mr. C's hat, face, hair, and shoulders were covered with the buzzing bees. He did not exactly like their familiarity, and fought them with dirt furiously for a considerable time, before he could drive them from his person. But by throwing off his hat, he finally rid himself of the bees and succeeded in hiving them. Wonderful to say, that during his fierce battle, he received only one sting.—*Littleton Gazette.*

[For the Bee Journal.]

Albinos in a Bee-Hive,

Five bees as white as unbleached cotton cloth were seen in a hive of black bees at swarming time. The old queen had been removed at the time; and all the young queens produced, five in number, were saved in hopes to get the color permanently fastened on other young bees, but failed. They were seen before the introduction of Italians. JAMES M. MARVIN.
ST. CHARLES, ILLINOIS.

SEND us the names of Bee-keepers, with their Post Office address.

[For the American Bee Journal.]

Bee-Hives.

Mr. EDITOR:—I notice in the July number of the BEE JOURNAL a partial description of Mr. Allen's bee-hive, by W. A. Bennett, of Syracuse. Now the first and leading objection to any of the hives in use is *the cost;* in consideration of which none but such as can make their own hives presume to follow the improvements which are constantly coming to our notice. I am very confident that a hive which would meet with general favor with the bee-keeping farmers, must combine all the present improvements, with greater simplicity and less cost,

As Mr. Bennett gave *some* of the leading features of Mr. Allen's hive, without stating the cost of the same, I will describe to you a hive which I have had in use over two years, which I made for myself, trying to remedy objections which I found in all other hives, making it simple and cheap and easy of manufacture.

My frames are made with the top-piece or head like any other movable frame, but without the bottom piece, which annoyed me from the comb cuttings and worms collecting on them. The ends are made one inch and a half wide (a little wider for the Italian bees) and one-half inch thick, being bevelled about a quarter of an inch on both inside corners. When cut to a length, make a saw cave or slot in the lower end, deep enough to receive a piece of pail hoop-iron, for the purpose of holding them in place. The top pieces are nailed in one-fourth of an inch down from the top of the ends to form a chamber between the bottom of the supers and the top-pieces, without a honey-board. This completes the top and ends of the stock department. I put some sides of thin boards, (or of pasteboard, with strips tacked to it to hold it straight,) and bind the whole together with a piece of hoop-iron, encircling the whole and making it tight by crowding one side of the hoop lower than the other. The whole making a clear open box of the requisite size, which can be handled like an old box hive. The entrance to the hive is by slots cut in the bottom board, half the thickness of the board; and by sliding my hive back on the board (over a little screen for ventilation) the bees are shut in.

I lastly inclose the whole with a box made from rough, common boards, large enough to leave a space all around the stock or inner hive, which box can be removed at pleasure, without disturbing the bees or even letting any different air to them.

The advantage of this arrangement is a more even temperature both in warm and cool weather. The supers can be made very cheap of two boards, just large enough to cover the top of the hive or chamber, (the top of the chamber is the bottom of the supers); then cut a groove half through the board all around it, and from waste pieces of glass and strips of paper, and some paste for the joints, a box can be made very nice and cheap by means of a diamond or even an old file.

The cost of this hive need not exceed a dollar and a half ($1 50) in this vicinity, where lumber costs from $15 to $40 per thousand feet.

Now, Mr. Editor, if this discription finds a place in your JOURNAL and is understood, it would please me to have it criticised by any of your subscribers, particularly by such well-known apiarians as Quinby, Baldridge, Grimm, Langstroth, and Mrs. Tupper, believing that hives can be made less complicated and more useful.

J. A. SHAW.

DARTFORD, WISCONSIN.

[For the American Bee Journal.]

Bee-Hives.

DEAR BEE JOURNAL:—From some remarks last month I infer that you do not favor side-opening hives. In commencing bee-keeping I was early aware of the importance of having but one form of hive in the apiary, and of course wished that one to be the best.

After much time and study spent on the subject, I became convinced that none would answer at all so well as either Langstroth's or the American. I have used both for two years, and must say I find many points in the American, which I think an improvement on the first movable comb hive.

I will try and give my views, but should be glad of further light on the subject.

1st. Tall hives are better than low ones. I think all will admit that.

Bees winter very badly in Langstroth hives about here—last winter especially. When my Langstroth's were side by side with the American, with the honey board removed and a thick layer of corncobs in place of it, and winter passages carefully cut, the amount of dead bees in the spring in some amounted to nearly half the swarm, while the Americans lost scarcely any.

In Langstroth's, the surviving bees generally occupied one corner, while the other parts were covered with frost.

In the American, from the shape of the hives, the bees remained below their stores, and of course kept the heat from their bodies above them.

Mr. Quinby suggests as a remedy, tipping the flat hives on end in winter. But I am sure I should not like such a proceeding.

2d. The difficulty of removing the first comb in Langstroth hives, when they are full of honey, is such that I very often neglect it entirely, especially in old hives. But with the American, I have sometimes opened a hive of common bees so quietly as to have scarcely a bee leave the frame, using no smoke or anything else, and I very rarely kill a bee in the operation.

3d. In preparing the Langstroth hives for wintering. by covering the frames with corncobs, &c., if a person has many hives it is a tremendous job, and then if he wishes to look into one towards spring, they must all be removed and put back again. The same thing is accomplished in the American much quicker, and so far as my experience goes, much more efficiently,

4th. The Langstroth hive is very apt to leak in wet weather, unless covered. The roof of the American hive makes this impossible.

5th. In the improved American hive, you have no honey-board to bother with, as the frames form that themselves, and the boxes are almost a part of the body of the hive itself. Still they can be readily removed, and never contain brood, so far as I have seen.

On the contrary, it is claimed that the Langstroth hive furnishes more room on top for surplus honey-boxes. But, with the manner of raising the boxes on the American hive, when half filled, I think that all the bees of any swarm can be fully employed.

I cannot see the objection of keeping the frames all at equal distances. Will some one enlighten me? Supposing the combs all built nearly uniform as mine have been so far.

Now, Mr. Editor, I am afraid this looks too much like advertising a patent hive, but I own no right except an individual one, and have no interest except to wish to know which *is the best* hive for us all to use.

The inventor has no knowledge at all of what I am writing, and if any of your subscribers can inform us how the Langstroth hive can be used just as well and as easily in the points mentioned, I shall be very much obliged to them.

The first item mentioned is the most important, as bee-keepers here have agreed that the old bee-hive is much better than Langstroth's for wintering. What is the objection to the movable side? Any information on the above points will be thankfully received by—

A NOVICE.

Relative Tenacity of Bee Life.

One of the nests of *Bombus fervidus* I kept in a box for some time and watched the action of the [humble] bees; but as I then neglected to make full notes, and as my first observations were confirmed by later ones, I allude to them here only to introduce an incident which has relation to the duration of life of the various kinds which always compose the communities of humble bees. Upon leaving Warwick I left my valise, in which was a nest of bees, at the depot. Two months afterwards, in November, it was brought to me, when upon examining the nest several large queen-bees were found in a lively condition, while the males, small females, and workers were all dead. When the valise was left at the depot, there was but one queen in the nest. This incident proves that the queens are not only late in leaving the cells, but that they are capable of enduring cold which is fatal to the other bees.—F. W. PUTNAM'S "*Notes on the Habits of the Humble Bee.*"

One community of humble bees kept by Mr. F. W. Putnam under glass on a window, with free ingress and egress, continued working until, on a very hot day, the young became baked in their cells by the heat of the sun. Then the old ones left, and did not return.

Statistics of European Bee-Culture.

FROM HAUSNER'S "COMPARATIVE STATISTICS OF EUROPE."

The ascertained number of stocks of bees in Europe (with the exception of Denmark, Sweden, Norway, the Netherlands, and Turkey) is 21,784,000, distributed as follows:

In Russia	12,500,000
Austria, (1857)	3,000,000
France, (1858)	2,200,000
Italy	1,250,000
Spain, (1861)	863,000
Prussia	400,000
Switzerland	320,000
Greece, (1860)	235,000
Bavaria, (1863)	233,000
Hanover, (1861)	201,000
Portugal	160,000
Wurtemberg	104,000
Great Britain	100,000
Belgium, (1859)	61,000
Saxony, (1861)	51,000
Hesse, (1859)	41,000
Baden, 1861)	25,000
Hesse-Darmstadt, (1858)	19,000
The rest of Germany	120,000

In the area of Europe there are on an average on each square mile	7 hives.
In Switzerland	21 "
On the Ionian Islands	15 "
In Galicia	15 "
Wurtemberg	14 "
Hanover	14 "
Italy	12 "
Austria	12 "
Greece	12 "
Hesse	12 "
France	10 "
Saxe-Weimar	9 "
Nassau	9 "
Bavaria	8 "
Russia	6 "
Hesse-Darmstadt	6 "
Belgium	5 "
Spain	4 "
Baden	4 "
Portugal	4 "
Prussia	4 "
Great Britain	1 "

On the entire area of Europe there is on an average one hive to every 11.7 inhabitants. In Greece, one to every 5.5; in Russia, one to 5,3; in Switzerland, one to 7.5; in Hanover, one to 9; in Galicia, one to 11; in Austria, one to 11; in France, one to 16; in Wurtemberg, one to 16; in Spain, one to 18; in Italy, one to 18; in Bavaria, one to 20; in Portugal, one to 23; in Nassau, one to 29; in Saxony, one to 43; in Hesse-Darmstadt, one to 45; in Prussia, one to 46; in Baden, one to 54; in Belgium, one to 77, in Great Britain, one to 291.

The annual product of honey and wax in Austria, France, and Greece is as follows:

	HONEY.	WAX.
Austria	17,600,000 lbs.	11,220,000 lbs.
France	16,020,000 "	3,840,000 "
Greece	880,000 "	880,000 "

Thus the honey produced in France averages 6⅜ lbs. per hive; in Austria, 6¼ lbs.; and in Greece, 3¾ lbs. The product of wax per hive averages in Greece and Austria 3¾ lbs., and in France only 1¾ lbs. In proportion to the population of the several countries, the product of wax is in Greece ¾ lb. to each inhabitant; in Austria, ¾ lb.; and in France only 1½ ounce.

For the American Bee Journal.

Apistical Budget.

The great value of fertile queens in early spring, to supply stocks that have become queenless during the winter, is well known to bee-keepers, and to supply them has been a subject of considerable thought with me.

I have at last fallen on the following plan, and as I do not know of any similar one having been made public, I offer it for what it is worth.

Make a large box, say twenty inches wide by twenty inches long, and fourteen inches deep. Nail slats across the bottom, (pieces of lath will do), leaving half an inch space between them. The top to be made like the cap of a Langstroth hive, and just large enough to fit over this other, with holes for ventilation.

Now make eighteen small boxes, six inches wide by seven long, and six high. These are to be made as follows: sides and ends of half-inch stuff; top and bottom of wire cloth, such as is used for queen cages. the bottoms may be fastened; the tops must be movable. On the inside of the ends, five-eights of an inch from the top, nail a cleat to hold the frames.

You are now ready for operations. Late in the fall fill one or two frames with sealed honey and put into each small box. Now lift out the frames and bees in the nuclei, with the queen to be wintered, and put them into the small boxes. When you have the eighteen filled, shut them up tight, that is so they cannot get out, and put the whole number into the large box, leaving fully half an inch space between each one. Put on the top, and you have a mammoth hive, made up of a number of small ones, whose united heat and stores are equal to the best store stocks you have. This hive is to be buried along with the rest, or otherwise protected, and will come out in the spring rich in stores and increasing in bees.

One more item and I am done. Might not pure queens be saved in this way: catch hundreds of handsome drones, and turn them loose in a large and well lighted room with a young unfertile queen a few days old? I have never tried it, but often thought I would.

I have many more items, but do not wish to crowd out others of more importance.

H. C. Barnard.

Charleston, Illinois.

[For the American Bee Journal.]

Uniting Bees in the Fall.

For several years I have practiced uniting bees in the fall in the following manner:

I have a box six or eight inches deep, and just the size of the lower part of the hive. The bottom of the box is covered with wire cloth, and two strips one inch square nailed on two opposite sides to give a chance for ventilation underneath. Then paralyze all the bees you wish to unite with puff-ball smoke, put them into the box, and set the hive over it. In a short time they will revive and crawl up among the combs, and will not quarrel.

If you wish to save any particular queen, remove all but that one. Do it just at night, fastening up the hive so that the bees cannot escape until the next morning. This has always been with me a perfectly safe way of introducing queens. The bees always keep the one you give them if you remove all the others.

To paralyze bees, make a tin tube six inches long and two inches in diameter, with a wooden stopper in each end, having a half inch hole through it. Peel some dry puff balls; lay one on the coals until it smokes; then put it in the tube, and blow the smoke into the hive until the bees drop to the bottom, which will be in from three to eight minutes, according to the size of the swarm.

It is necessary that they should have room at the bottom of the hive that they may fall clear of the combs.

J. L. Hubbard.

Walpole, New Hampshire.

[For the Bee Journal.]

Another American Bee Plant.

POLANISIA PURPUREA.

This hardy plant is said to have been brought from the Rocky Mountains. I procured a small package of the seed, which came from Kansas, and have raised it two seasons. It begins to blossom about the first of August, and continues in blossom five or six weeks. It is very hardy; the frost does not injure it, and I have not known a worm or bug to eat it.

It does best to sow the seeds in the fall. They germinate early in the spring, growing to a height of three or four feet, branching in all directions, and having a large number of beautiful purple blossoms. The bees work on it all day, gathering honey only; at least I have never seen one having any pollen on its legs.

I cannot tell yet in regard to the quantity or quality of honey it yields, as I have not raised enough for that purpose, but the bees work very freely on it.

It produces quite a quantity of seed, which can be saved after it gets through blossoming; but whether the seed is of much value I cannot say. I am going to try it on the sheep this winter, and if good for them, will report.

It does not grow so luxuriantly when sown in the spring, although it blossoms the same season. I have a quantity of the seed, and will send a package to any address if a small sum is enclosed to pay postage and expense of putting up.

Will H. A. Terry (or any other man) please send me a package of seeds of *Cleme Integrifolia*,

mentioned on page 50, vol. 3, of the AMERICAN BEE JOURNAL, in an article from the *Prairie Farmer?*

The season just past has been the best we have had for several years. The weather was favorable for the secretion of honey, and the bees have gathered much larger quantities than usual from red clover and buckwheat.

I almost forgot to say that I would return the compliment by sending a package of Polanisia purpurea to the one who sends me some *Cleome Integrifolia*, and also many thanks, as I wish to test the various kinds of bee plants offered.

J. L. HUBBARD.

WALPOLE, NEW HAMPSHIRE.

For the American Bee Journal.

Mr. EDITOR:—Since in a former communication to the JOURNAL I was bragging up the amazing docility of my Italian bees, I have thought it advisable to transmit to you, at this time, for publication, the extraordinary effusion of my little daughter's astounding inspiration, which although not altogether unaided by my own, (of course,) has perpetrated the following persuasive exhortation to a decrepid Italian Bee. F. V.

To an old Italian Bee.

Restless wanderer through the glade,
Whence and whither art thou bound?
Come and linger in the shade,
Rest thee from thy ceaseless round.

Torn and tattered are thy wings,
And their hum betrays thy days,
Lesser grow thy golden rings,
Fainter their once brilliant rays.

Still, though worn with age and cares,
Unrest is thy chosen lot;
'Midst the glen's unnumbered snares,
Thou yet roam'st and heed'st them not.

Song with industry combined,
Is thy glory, end, and aim;
Thou art happy, free and kind,
Universal is thy fame.

Sweeter far than Siren song,
Heard by sailor on the main,
Is to me, the flowers among,
Hum of thine, upon the plain.

Truly, labor is thy joy,
Unlike man's enjoyment, thine;
For no tedious hours annoy
Thee, like him 'mid flowers and wine.

Unlike him; thou mad'st no vow
To desist from drinking mead;
But thou sipp'st it now, and now:
Nectar is thy drink and feed.

Not like him, when anthems swell,
At thy oft reviving revels,
Dost thou buzz of crackling hell,
And of grinning death, and devils.

Yet, thy end is much like his,
Here we may the fact accredit,
Still, it seldom ends in bliss,
We have heard, and sung, and read it.

Fire and brimstone are thy lot,
When thy toilsome life is ended;
Stay, repent thee, on the spot,
Lest thou perish unrepented.

Four score days and ten have past,
Since thy bibbing days began;
Unless thou repent at last,
Thou wilt die a drunken man.

Tippler, sabbath breaker, thief,
Busy body to thy end,
Of all outlaws thou art chief;
Hence, before thou die, *amend.*

ADELLA C. VARRO.

WASHINGTON, PA., Aug. 27th. 1867.

[Translated for the Bee Journal.

Various Items.

1. *Will bees accustomed to a fertile queen accept an unfertile one?*—It is commonly believed that when a fertile queen is removed from a colony of which she has long been an inmate, the bees will not readily and immediately accept an unfertile queen which may be offered to them as a substitute. An occurrence in my apiary last summer, however, shows that such is not invariably the case.

I removed a fertile queen from one of my hives, designing to use her elsewhere. But having, at the time, a supernumerary young queen, recently hatched and still unfertilized, I intended to introdue her to the bereaved colony in a cage; but after I had opened the hive and placed her on a comb, she flew off and thus escaped imprisonment. I concluded that she was lost, as she was a stranger and would scarcely seek the hive; or even if attracted by the humming, she would probably be attacked and destroyed by the bees, as yet unconscious that they had lost their queen. Thus thinking, I closed the hive and left.

A few days after I procured a queen cell nearly mature from another hive, to insert it in the colony believed to be queenless. But this proved to be needless, for on opening the hive I found the young queen supposed to have been lost moving about very actively on one of the combs. Well content to find it so, I closed the hive again, and carried back my queen cell.

I presume the young queen kept hovering about the hive till the bees discovered that their old queen had been removed, and began to manifest their uneasiness after my departure. Attracted by the "noise and confusion," she may then have ventured to mix with the crowd, and been kindly received at the moment when from conscious queenlessness they were verging on despair.

2. *Safe introduction of queens.*—When preparing to transport my stocks to a distant heath last autumn. to enable them to avail themselves

of the abundant fall pasturage there, I made an artificial colony by supplying a hive with empty combs, placing therein a caged, fertile queen, and stocking it with bees taken from various overpopulous colonies. When closing the hive the queen was accidentally liberated, and in this condition the colony was transported to the heath. When arrived there, and the entrance was opened, the bees rushed forth in crowds, but in a few moments returned, became settled, and proceeded to collect pollen. Several weeks after, when brought back to my apiary, this colony contained plenty of brood. This shows that to a colony composed of bees gathered from two or three different hives, a fertile queen may be safely introduced without the usual precaution of caging her.

3. *Will early swarms always accept of a ready furnished hive?*—I suppose I am not the only bee-keeper who has found that bees will sometimes desert a hive containing empty combs. I had such a case last summer. On the 26th of June a very large swarm of black bees issued from one of my hives. I placed it in a hive furnished with nice clean combs. On the 27th it abandoned the hive. I rehived them immediately, and caged the queen; but on the 28th they came out again, deserting their queen. I now placed them in another hive, containing frames furnished with only narrow strips of guide-comb. They remained in it perfectly content, built combs rapidly, and collected stores enough to carry them through the winter.

I placed an artificial colony in the furnished hive a few days afterwards, and they seemed well pleased with the provision thus made for them, commencing operations forthwith, and prospering well.

Swarming bees, particularly those of second swarms, appear to have an instinctive desire for comb-building, and are prone to reject "furnished quarters." This can only be overcome by supplying them with a comb of brood.

[For the American Bee Journal.]

Proposals Wanted,

Through the BEE JOUNAL, to furnish me

First—with a stock or swarm of pure Italian bees that are as good workers as half breeds.

Second—a queen that will reproduce others, exact counterparts of herself, with no variations.

Third—a queen that is entirely yellow and will reproduce others in any numbers, like herself.

Fourth—a queen that produces workers in any number, with *four* yellow bands.

Fifth—a queen that produces drones all yellow, or with one-half brown on the two last bands only.

Persons having any or all of the above-described stock will do well to let it be known through the BEE JOURNAL.

ST. CHARLES, ILLS. JAMES M. MARVIN.

SEND us the names of Bee-keepers, with their Post Office address.

On the Reproduction of Bees.

BY PROF. C. T. E. VON SIEBOLD.

It is high time that zoologists and physiologists should turn their attention to a phenomenon in the history of the reproduction of animals, which, during the last few years, has warmly interested the apiarians and set them in the greatest excitement. I mean the mode in which each separate colony of bees contrives that the worker,-drone,-and royal-cells prepared by it are always furnished with the proper eggs, from which, as is required by the arrangement of these different kinds of cells, the worker-larvæ, drone-larvæ, and queen-larvæ destined to dwell in them, are always disclosed. Hence the oviposition in the bee-hive must be effected according to peculiar rules, in order that the conditions just mentioned may be fulfilled. This act of oviposition must be subjected to determinate laws, which do not affect the oviposition of most other insects, as in these it is a matter of indifference in what consecutive order and number male and female eggs are laid. But the question, how each separate bee-colony succeeds in obtaining the suitable supply of eggs for all its combs, differently as these are prepared as regards the number and arrangement of the three kinds of cells, has not been easily answered. Nay, we may perhaps say that this process has hitherto appeared to be an impenetrable mystery, the solution of which has not been effected by the most careful endeavors and observations of the apiarians continued for many years. This mysterious circumstance, which distinguishes the oviposition of the bees, has also been the cause that from time immemorial, the apiarians have been disputing about the signification of almost every individual step in the process of reproduction in the bees. This contest has continued even to the present day, and it is scarcely possible to imagine a single absurdity with regard to the history of the reproduction of the bees, which has not already been expressed in sober earnest by some apiarian, and is now to be read in print in some of the innumerable bee-books. The greatest confusion especially was caused by the circumstance, that people could not agree with regard to the sexes of the bees. The drones were regarded as females, and the queens as males; sometimes it was supposed that the workers alone had the care of oviposition; sometimes the true act of copulation between the drones and the queen was supposed only to take place in the interior of the hive; the wedding-flight of the queen would then only be a sort of purification. Whilst from another side it was asserted that the act of copulation was never performed in the hive, but always high up in the air during the wedding-flight. The act of coition was thus entirely denied, the queen becoming fertilized by the agitation of her body during the wedding-flight. I could fill many pages here with these contradictions, which are deposited in the annals of the history of bee-life, and by which the study of this otherwise so interesting subject from books, has been stunted into a most ungrateful task.

The endless dispute about the reproduction of bees, often carried on with great animosity, in which the opponents of the different theories of generation relating to the bees often showed themselves to be mere dilletanti, miserably furnished with natural-history information, was not fitted to attract the interest of physiologists. Indeed, it appeared as if the apiarians wished to fight the battle out among themselves without foreign assistance; for the contest was never brought within the province of an earnest investigation of nature. Moreover the naturalists could not very easily take part in the dispute, as they were mostly deficient in the practical knowledge of the economy of bees, without which every attempt to settle the matter must have turned out imperfect, and would have been received with direct distrust by the obstinate bee-masters, to whom such an attempt might have served as an instructive hint. In this dispute of the apiarians, which was constantly blazing up afresh, the activity of the naturalists limited itself to their ascertaining and establishing as an incontrovertible truth, by the aid of the dissecting knife and the microscope, that the drones are the male individuals, that the queen is the female individual, and that the workers are not merely a sexual, but female individuals whose reproductive organs had not come to their full development. Upon this subject investigations were made and published by the zootomists at very different periods. I refer only to the works of Swammerdam, Reaumur, Mademoiselle Jurine, Suckow, and Ratzeburg. Although the representations of the male and female sexual organs of the bees have been copied from Swammerdam's *Bibliæ Naturæ* by various writers upon these insects, and consequently the facts established anatomically were communicated to the apiarians, yet for a long time these truths could not boast of a recognition by all bee-keepers. These entomotomic investigations probably did not appear sufficiently significant to the apiarians, because there were still many things in the history of the reproduction of the bees, which could not be explained with this knowledge of the sexual relations of these animals. Many practical apiarians looked upon this anatomical proof of the sexes of the bees merely as theoretical stuff, and returned to their so-called practical way, which they imagined to be the right one, without regard to these facts, preferring to explain the different sexual functions in a perfectly arbitrary and unnatural fashion, according to their own individual and often very limited views.

After I had, in the year 1837, ascertained the existence and signification of the seminal receptacle in female insects, and in 1843 called attention to this reservoir of semen in the queen bees, by the functions of which many phenomena in the reproductive activity of the bees, which had hitherto remained problematical, or had been incorrectly explained, might be properly conceived, these investigations exerted no particular influence upon the perverted views of most of the apiarians. They probably paid no further attention to them, regarding them as theoretical stuff, and yet, by the recognition of the function of the seminal receptacle, a phenomenon in the bee-hive, which had been a source of wonder from time immemorial, could now be correctly explained. Thus it had been ascertained by me that after copulation had taken place, the semen of the drone, which filled the seminal receptacle to overflowing, remained in this place, capable of impregnating the eggs, not merely for months, but for years, as might be seen from the movements of the spermatozoids of this semen continuing for that period. This explains how a queen, fertilized by a single coitus, after discharging her eggs in the first year, may again in the following year, and even still more frequently, lay eggs capable of development, such as the hive requires, as fertilizing semen is constantly preserved in her seminal receptacle, to fecundate eggs even for so long a period. But even this discovery was ignored by most of the apiarians. As a general rule, fresh scruples as to the value of such anatomical and microscopical investigations were constantly rising among them with respect to the determination of the sexual functions of the bees.

There were two phenomena especially in the economy of the bees, which troubled the minds of the apiarians with reference to the division of the sexual functions in those insects. I mean, *first*, the capability of an imperfect-winged female to produce brood, and, *second*, the production of brood in queenless hives. Those who acknowledged the queen as the female individual of the bees, and, in accordance with the physiological laws hitherto current, ascribed to her the property of laying eggs capable of development only after previous copulation and the filling of the seminal receptacle with spermatozoids, were, in consequence of the first-mentioned phenomenon, rendered doubtful where and when the copulation of the queen bee is affected. From this arose the dispute, abundantly battled out in the books and journals relating to bees, as to whether the queen copulates in or out of the hive. That the former was possible was thought to be proved by the imperfect-winged queen laying eggs capable of development, and thus the two sexes of the bees were supposed to perform the act of copulation in the interior of the bee-hive, although such a copulation in the hive had never been seen. In those cases in which the second remarkable phenomenon previously mentioned occurred, namely, brood in a queenless bee-hive, we should entirely mistake the sexual functions of the bees. Such observations were principally employed in raising objections of insufficiency and untenability against the scientific endeavors at the determination of the sexes of bees.

In most zoological and entomological works we find all the acrimonious controversies regarding bee life either imperfectly mentioned or scarcely indicated, and hence it may have happened that the history of the reproduction of the bees has remained untouched by those physiologists who have specially occupied themselves with the generation of animals. On this side no one had any idea what difficult problems are here presented to science for solution.

Moreover, the physiologists were lately engaged by another very attractive but also very difficult subject, which incited them to inquire after the laws, according to which the asexual reproduction, previously regarded as an exception and now characterized by the name of *Alternation of Generation*, occurs disseminated among the lower animals, together with sexual generation.

By the entomologists the physiology of reproduction has been very scantily enriched of late, as most of them found their task only in rectifying the species of insects. Many of them endeavored, at the expense of much time and trouble, to determine those species which have been furnished with names by Linnæus and Fabricius, whilst the majority found a still greater pleasure in enriching the systematic catalogues of insects, with a few perfectly new, although extremely insignificant species.

As up to a very recent period the apiarians formed a sort of close corporation, wishing to answer the most important questions relating to the reproduction of the bees among themselves, it may thus have happened that the fruits with which the knowledge of the history of reproduction was enriched by the labors of modern naturalists, could not be perceived at all by this close and short-sighted circle, and consequently could not be made use of by them. Nor did any voice ever force its way out of their circle which might have called in the assistance of the physiologists in the decision of certain problems in the reproduction of the bees. Only within the last few years has the demeanor of the apiarians changed in a most satisfactory way, and it must be said, in praise of the present circle of apiarians, that at this moment it numbers among its members men who have arrived at a conviction that bee-life does not merely serve to furnish man with wax, honey, and mead, but that it constitutes an extremely remarkable link in the great and most multifariously composed chain of animal existence, the importance of which, however, can only be understood by the assistance of knowledge, such as is furnished by the present development of the natural sciences. By the activity of these enlightened men a complete revolution has taken place in bee-keeping; a rational process introduced by the apiarians, and rewarded by the richest results, now celebrates the most complete triumph over empiricism; and the names of Dzierzon and Berlepsch above all deserve to be named as conquerors.

[For the American Bee Journal.]

Italian Bees and Red Clover.

Mr. Editor:—In looking over the September number of your excellent Journal, I read an article from Mr. J. McCune, in which he proposes two questions to "bee-men and novices." The second of those I propose to answer, as I claim to be one of the persons to whom the question is addressed.

"*Has any one, not raising queens for sale, ever had bees to work freely on the second crop of red clover?*"

I propose to answer this question to his entire satisfaction. I cannot claim, however, that I saw *my* bees work on red clover, second crop; but will state that Mr. B. Z. Replogel, of Hagerstown, Ind., and myself visited the apiary of Messrs. Langstroth & Son on the 3d day of August last, and after spending a short time in the examination of a few stocks of bees and their Italian queens, and the patent machine for extracting honey from the comb in frames, I asked Mr. Langstroth to settle the question, with me at least, whether the Italian bees could gather honey from the second crop of red clover or not. He requested Mr. R., myself, and several others to step into his clover patch, which was close at hand, and satisfy ourselves on the subject. We did so, and found the Italian bees working freely upon the bloom, without seeing a single black bee.

G. B. Long.

Hopkinsville, Ky., Sept. 13, 1867.

Bradford County, Pa.

This county being a white clover and buckwheat region, is a good place for bees. The drawbacks are very changeable weather both summer and winter, long winters and *foulbrood*.

This disease is the greatest enemy of all. We know nothing of its cause or cure. If you know anything that will prevent or cure this disease, you will confer a great benefit on your readers by publishing it.

I bought an Italian queen bee, reared a few queens from her, and gave them to some of my black colonies. The result is I get more honey stored by the hybrids; but they are so cross that I have sometimes wished I had never seen them. They find their way into the house and everywhere where there is honey.

I know that there is a great deal said and written about the good nature of the Italians when pure, while it is generally admitted that hybrids are more vindictive than *either* variety when pure. Now, how can this be reconciled with the laws that govern all other transmitted qualities of animal or vegetable being?

I know of nothing else that deviates so strangely as it is claimed that bees do in this case. Where do they get this tendency to pugnacity, if not from their ancestors? And how can their progenitors impart that which they do not possess?

If the truth be hid from the public to subserve speculation, or for any other reason, it cannot be so held very long, and honor to the man who is honest enough to tell it first.

P. Peckham.

Foulbrood still remains a mystery, its source or cause being alike unknown. No efficient prevention has yet been discovered; nor has any prompt, conveniently available and unfailing cure yet been devised.

It is unquestionably true that impure Italian bees, or hybrid, are peculiarly ill tempered and irritable. For the present we must rest content to know the *fact* without presuming to assign a reason for it.

Send us the names of Bee-keepers, with their Post Office address.

[From the Canada Farmer.]

Honey and How to Judge It.

There are many kinds and qualities of honey. Almost every kind of flower secretes honey peculiar to itself and possessing to a considerable extent, the properties of the plant or flower whence it is derived. Hence some kinds of honey are very unwholesome or poisonous, being gathered by the bees from noxious flowers; other kinds again are simply unpleasant to taste—not fit for the table. It has been supposed by many that bees make honey, but such is not the case, they only gather it from the flowers that secrete it; hence its different qualities and flavors. As we have few if any poisonous flowers in Canada, we have little or no unwholesome honey. In the Southern States much of the honey is quite poisonous, and cannot be eaten until after it has been boiled, which is said to evaporate a portion of its bad qualities. There are people who think they cannot eat honey even in Canada, without first boiling it; but if such were to select honey gathered from white clover or bass wood, I have no doubt they could eat it as safely as any other sweet.

Bees never mix the different kinds of honey when depositing in the hive. If bees commence to work on white clover they will work on nothing else, so long as that kind of honey can be obtained to any great amount, and all that kind is deposited by itself. When they leave that for buckwheat they no longer deposite it in the same cells with the clover honey, but in adjoining cells, or in a separate piece of comb. Experienced bee-keepers are aware of this, and as soon as buckwheat blossoms they remove all boxes that are nearly full—that is, if they which to keep the clover honey pure. Again, when removing honey from boxes for the purpose of straining, those pieces of comb containing buckwheat honey may be separated, and the clover honey preserved pure. If some of those who exhibit honey at the fairs were to be more careful as to the kind of honey they selected for exhibition, they would be more likely to obtain prizes. I have seen fine white clover honey greatly injured by leaving a small portion of buckwheat honey mixed with it. There being so many kinds and qualities of honey, there is a chance for selection.

As our Provincial Fair is close at hand, I take the liberty to explain how honey should be judged—in other words, to point out what the characteristics of good honey are, for the benefit of those who may wish to compete, as well as for those who may be appointed to judge. Though I have no reason to complain, having received first and second prizes for two or three years, yet many times at our county fairs I have known the prize to be awarded for honey on account of it possessing one peculiar feature, that of being thick; at other times on account of its being of a very light color; while little or no regard were paid to other important qualities. Honey in the comb can only be judged by its appearance, so long as it is exhibited in close boxes, so that it cannot be tasted. It often happens that an inferior article of honey in the comb obtains the prize, as the prize is awarded to that which is the whitest; but the whitest comb does not always contain the purest honey. Yet, as before stated, so long as honey is exhibited in close boxes, it is proper to award a prize for the whitest comb. It is, however, quite different with honey in the jar, which is open to inspection, and which, to be first-class, should possess the following characteristics: light color, thickness, and pleasant flavor. Though honey may not always possess all these qualities, yet the nearest approach thereto should be awarded the first prize. It would be very improper to award the first prize to a jar of honey on account of its light color, if another jar was of a thicker consistency and better flavor, although considerably darker; and so of the other qualities. I may safely say there are only two kinds of honey gathered in Canada which possess all the above qualities. One is gathered from clover, and the other from that abominable nuisance, the Canada thistle. Both, if properly prepared from virgin comb, are light in color. That gathered from the thistle is generally somewhat thinner than clover honey, but its flavor is more aromatic, and to most tastes more agreeable, especially when combined in proper proportions with clover honey, whose flavor it overcomes or hides. The proportions are about one part of clover honey to two parts of thistle honey. This, when properly prepared, will eclipse all other honey, and carry off the prize, as I have proved for three years.

J. H. THOMAS.

BROOKLIN, ONTARIO, Sept. 4, 1867.

Flanders' Apiary.

The editor of the *Ohio Farmer* recently visited Kelley's Island, in Lake Erie, and gives the following account of what he saw there in the "bee line:"

"W. A. FLANDERS, THE BEE MAN.—Professor W. A. Flanders, you may have heard of him, has his Apiarian Institute on Kelley's Island, and of course we visited his Institution. Mr. Flanders has a host of bee-families, dwelling in busy harmony under every green tree in the neighborhood. Talk of big prices for merino rams, Flanders can get more money for an Italian queen bee, with three rings around her tail, than any ram pedler can get for the best Vermont merino in his flock. Flanders showed us (in a vial of alcohol) one of these amiable little female sovereigns who had lately fallen in a duel with another amiable little female sovereign, for which he declared, with a sigh which came from as low down as the seat of his broad pantaloons! that he would not have taken sixty dollars! Bugs is riz! But then the thing can be settled by arithmetic; here are fifty other amiable little female sovereigns, bred from this little insect in the vial, for each of which Flanders can take from twenty to twenty-five dollars. The demonstration is plain—a little insect not so big as a tooth-pick, worth more money than a short-horn bull! The idea would be ridiculous if it was not true. But Flanders has improved upon the original Doctor Jacob Townsend, and instead of being satisfied with the orthodox full-blood Italians with three rings, has got one better, and showed us a queen of his raising with four rings around her body, all of the royal purple and gold."

THE AMERICAN BEE JOURNAL.

WASHINGTON, OCTOBER, 1867.

☞ The American Bee Journal is now published monthly, in the City of Washington D. C.,) at $2 per annum. All communications hould be addressed to the Editor, at that place.

Our remark in the last number of the Bee Journal respecting side-opening hives, was not designed to express an opinion as to their qualities as a home for bees, but simply to state the *fact*—of which many bee-keepers seem not to be aware—that such hives are not a new invention. They have been in use in Europe for more than thirty years, and especially in the shape given to them by Dzierzon, when introducing the movable bar or slat, have been till quite recently the "crack hive" there of improved bee-culture. Latterly, however, they are regarded with somewhat less favor, and are no longer exclusively used, though undoubtedly still retained by the greater number of apiarians. Of their properties, good or bad, we do not now undertake to speak, as we have never tried them. Mr. Langstroth, we believe, used them before adopting the present construction of his hive, and it is fair to presume that he did not reject them without sufficient reason. We regret exceedingly that his continued ill-health precludes the hope that he will be able, for some time yet, to state what that reason was.

Our esteemed correspondent, Novice, seems to labor under a misconception also, respecting the Langstroth hive. He appears to regard it as restricted to one particular form—broad and flat. This is by no means so. You may give it any shape or form you choose, or find convenient, or deem advantageous—broad and flat, oblong and shallow, oblong and deep, square and tall, or square and flat. Any form you choose to give it still leaves it a Langstroth hive. We have it now, and have long had it, of three different forms—square and shallow; square and deep; and oblong, narrow, and of medium depth. With ordinary care we have had no difficulty in wintering bees well in any of these; but it is precisely with the *shallow hive* that we have been most successful in that particular. We have never used the corncobs, and cannot say whether they are more troublesome than serviceable, or not. The removal of the honey-board is ordinarily all that is required in this region.

A comparative test between adjoining hives of differing shapes is apt to be deceptive. We have known bees to pass the winter in a very different condition in two neighboring old-fashioned box hives of precisely the same shape, make, dimensions, and materials, and containing colonies and stores so nearly equal in the fall, that it would not have been easy to point out an essential difference. Both survived the winter—the one in good condition, bees lively, and with surplus stores; the other weak, languid, and stores nearly exhausted. The cause of the difference was certainly not in the shape or size of the hives, or of the material of which they were made. We have no doubt that those who use straw hives exclusively, which are usually thought the best for wintering, have occasionally experienced similar contrarieties.

When Dzierzon's side-opening hives were first introduced in Germany, the general complaint of those who tried them was that "bees winter badly in them." This objection continued to be urged for several years. Gradually less was heard of it, and finally it ceased to be mentioned. Meantime no material change had been made in the form of the hive. Use and experience probably enabled those who have them, to put matters in better trim in the fall than they could originally.

If a full set of frames is kept in the Langstroth hive during the entire season, they are unavoidably placed in close proximity to each other. There may then occasionally, when honey abounds, be some difficulty in removing the first frame. This is not the case, however, if one frame is left out during the working season, and the others set no further apart than they should be, leaving the vacant space at one side.

A badly made top of a Langstroth hive will leak; and so, we imagine, will a badly made top or roof of any other. We have Langstroth hives that have been in constant use for thirteen years, and never leaked; and have others that did leak the first season. A device susceptible of being well and efficiently executed, is not to be condemned for a defect not inherent.

So long as multiplying stock is the main object, the honey-board of the Langstroth hive is decidedly useful, and a convenience. When that object has been accomplished, and large honey harvests are mainly aimed at, it *can* be dispensed with. Properly adapted supers may then be substituted; or, retaining the honey-board, a second tier of frames, with a horizontal divider, may be introduced with obvious advantage. This has been done years ago in the

Langstroth hive; and it still remained a Langstroth hive, even with such change of arrangement.

We do object to making the movable frames laterally a fixture, for nothing is gained by it. Why tie together the fingers of your hand when whatever can be done with them thus tied, can be done with them separate, and many things in addition utterly impracticable otherwise? Originally both frames and bars were thus permanently fixed, but the advantage of liberating them was soon perceived, and the marvel now is that they were not at first made free. Boys may use bladders when learning to swim, but will never become experts in the natatory art, if they adhere to those supporters permanently.

As regards hives, the more simple they are the better. All you really want is a box—whether square or oblong, flat or tall—to receive, enclose, and support the frames. The top, the honey-board, and the frames should be movable. The bottom may be movable or not, at the option of the operator. All beyond or beside this only complicates matters, without superadding any advantage. We have observed, however, that fancy and habit have as much to do with fixing preferences in bee-culture as in other pursuits; and that assiduous practice afterwards, even with ill-adapted means, enables the bee-keeper to get along very satisfactorily to himself, and often with tolerable success. Hives, too, are frequently contrived or selected in accordance with preconceived notions, in the expectation that the bees will conform to our whims. This has always been a general error with those who aimed at producing something superior to the common cottage hive, instead of studying the natural habits and wants of the bee, and then seeking to adapt their inventions or modifications thereto. A large majority of the model hives in the Patent Office plainly indicate that of their authors, many really knew little about bees, and others resorted to ingenious efforts to evade or circumvent the patented claims of meritorious inventors. In this regard, however, demonstrations of ingenuity are by no means confined to the sphere of bee-culture.

Another Bee Plant.

The plant named below grows plentifully in the marshy grounds on the borders of the Eastern Branch of the Potomac (the Anacostia) at Washington, and furnishes most valuable fall pasturage for bees, as it remains in full bloom several weeks. Our bees are now busy on it, and frequented it last year till the first week in October. It is unfortunately an annual, and may not furnish equally abundant supplies every year. The honey it yields is excellent and well flavored. We enclosed a specimen of the plant to Prof. T. C. PORTER, of Lafayette College, Easton, Pa., and have from him the following in reply.

"The plant you enclosed is *Bidens chrysanthemoides*, Michx. (Bur-Marygold). You will find it in Gray's Manual. It is common in swamps and along the muddy borders of streams throughout the United States. I did not know before that bees worked on it, and will add it to my list of honey-bearing plants.

If all the bee-keepers of the country were to observe the plants frequented by bees, and what they gather therefrom, and dry flowers and leaves, however rudely, and send on those specimens to the BEE JOURNAL with their notes, I could readily identify the plants; and thus very valuable material for a bee flora would accumulate in a short time. Dried specimens of plants, unaccompanied by writing, can be sent by mail for a trifle."

For the American Bee Journal.

Swarms Deserting Brood.

MR. EDITOR: It has often been asserted that a colony of bees would never desert a hive when brood was present in its various stages. Indeed, I have always laid it down as a rule that sure inducement for a new swarm to stay in their hive, was to take a card of brood comb from a full hive and put it in the new hive at the time of swarming. But I have a case in point to the contrary. On the 10th day of July, I forced a swarm into a new hive, and as I always do, inserted a card of brood comb. At the time there were maturing queen cells in the parent stock, and everything appeared to be in the best condition. But on the third day while a natural swarm was in the air, this forced one left its hive and joined the one on the wing. Subsequently they both left for the woods. On examining the deserted hive, I found new comb commenced, but almost wholly destitute of bees.

Has any other had like experience, and how will we account for the occurrence?

B. S. HOXIE.

COOKSVILLE, WISCONSIN, Sept. 10, 1867.

☞ Inserting brood comb alone is not always a preventive of desertion, especially if the brood is nearly mature. Select a comb with unsealed brood, add another containing honey, (or take one containing both unsealed brood and honey,) and supply the swarm with water, and it is not at all likely to forsake its hive.—ED.

A Singular Case.

I have a queen bee laying eggs which do not hatch. She is forty-eight days old, and cannot fly.

JAMES M. MARVIN.

ST. CHARLES, ILL. Sept. 9th, 1867.

[From the Ohio Farmer.

Success in Bee-Keeping.

I thought I would give your readers a little of my experience in bee-keeping. I had twenty-four swarms last fall, which I buried at commencement of winter as usual. Most of the hives were rather light, as my bees made but little honey last season. When I took them from the clamp in the spring, I found that two swarms had starved to death, and one died afterwards from having lost its queen. The remainder were in good condition. I put on the honey boxes about the time that the white clover made its appearance, having previously stuck a piece of nice white comb into nearly every box. I use the Langstroth hive, and use three boxes to a hive that will hold thirteen pounds each. As soon as a box is full I take it off, and put another in its place.

Now for the result of their labor this season. From the 2d of July to the 14th of August, I took from the twenty-one swarms and their increase, 963 pounds of nice box honey, nearly all of which I have sold for cash at my own door. The increase is ten good swarms saved, and two or three that ran or flew away. From three hives that did not swarm, I took over eighty pounds each; from a young swarm that came out on the 20th of June, which I put into a hive filled with empty combs, I took over seventy pounds; from another that came out June 21st, to which I also gave empty combs, I took fifty pounds; from another that came out about the 10th of July and was put into an empty hive, I took twenty-six pounds.

Apiary. Cr.	
By 963 pounds of honey	$216 00
10 swarms	50 00
Total	$266 00
Apiary. Dr.	
To expenses, including care, burying, honey boxes, and interest on capital invested, and everything except hives	46 00
Net profit	$220 00

Can Professor W. A. Flanders, the bee man of the Apiarian Institute on Kelley's Island, who raises Italian queens that have one ring more than *pure*, or any other bee man, show a better result from twenty-one swarms of Italians, or three or four single swarms, if kept in common sized hives? The Italians may be, and probably are, an improvement on the common bees, but I think I should be a very ungrateful fellow to complain of my *natives*.

A. C. BRIGHAM.

TRUMBULL, OHIO, August, 1867.

P. S.—Since writing the above, I have read the account of Mr. Gould's (of Wenham, Mass.,) success with Italians, which pretty nearly beats me, but *not quite*. I have tried his corncob arrangement for wintering bees, but like burying much the best. I have never succeeded in obtaining *near* as much surplus honey in small boxes as I have in larger ones. A. C. B.

Correspondence.

MARTINSBURG, PA., Sept. 7.

Inclosed please find two dollars for your BEE JOURNAL. I am a beginner in business. My success was poor until now, prospects are good. On May 20th last, I commenced with four colonies and increased them to fourteen. Ten of these weigh over one hundred pounds each, and two of them over one hundred and fifty pounds each. The remainder will winter well. My hives weigh about twenty-five pounds each, which is included in the above figures. Let this suffice for the present, and at some future time I will give you my experience somewhat in detail, which if you think fit you may publish.

S. B. REPLOGEL.

FEDERALSBURG, MD., Sept. 8.

I am very much pleased with the BEE JOURNAL, and wish you much success. I will avail myself of every opportunity to advance the interest of your valuable paper.

M. L. SMITH.

NEW BERLIN, PA., Sept. 12, 1867.

Inclosed please find two dollars for the third volume of the BEE JOURNAL, which I think is getting better every day. If bee-keepers know their own interest they will not do without such a valuable periodical.

R. B. OLDT.

LITTLETON, (N. H.,) Sept. 12.

I purchased a swarm of Italians last fall. They wintered badly, and consequently have done nothing but to make up their loss.

I noticed a question in the September number of the BEE JOURNAL, whether any one not raising queens for sale ever had Italian bees to work freely on red clover. I have watched mine closely this summer to ascertain, having heard that they did; but I am satisfied they do not work on red clover as long as white clover is plenty. After that is gone they will take the red.

Another article from the pen of H. A. Terry, concerning his bee plant. I should like to have a few seeds very much. Would the gentleman send me a few in a letter, I will pay him for his trouble.

MRS. LAURA PAGE.

YOUNGSVILLE, (PA.,) Sept. 19.

Inclosed please find two dollars ($2) for volume third of your BEE JOURNAL. Cannot do without it.

WILLARD J. DAVIS.

[For the American Bee Journal.]

Italian Bees.

MR. EDITOR: I am sure that every reader of your valuable paper, if he is at all interested in bee-culture, must be well rewarded for the small outlay of the subscription price.

It is sometimes consoling to one that has had a certain kind of training or experience, to know that others have arrived at like conclusions by almost the same road. And while I admire the earnestness and candor with which each writer puts forth his views, I must yet confess it is highly amusing to read the articles and advertisements about Italian bees.

The assertions made and the *sharp hits* indulged in by the different correspondents, remind me of the old story of the chameleon. One gives one test, another something else. One raises them on an "island twelve miles from shore," (nice place, surely, out there on the water, rocking in the cradle of the deep,) another raises them on the top of a high mountain, where "native" bees cannot fly.

And now, I submit, is it not too bad, with all this painstaking on the part of *disinterested* men, and when I had pictured to myself the pleasure of possessing *one* pure queen, just to see how the striped fellows would look, and handle her progeny, (never expecting to raise any more that would be good for anything, because I have no mountain nor island on my premises,) to have another writer put in his pen and say: "Gentlemen, stand back, you have no pure queen in the lot!"

Well, friend Grimm is not to be fooled. He is going to make a *ten-strike* by going right to the place where they manufacture the simon pure article; and as he lives only some thirty or forty miles from me, I hope I may live to see one.

Now seriously, gentlemen, if it is so much trouble to get pure stock, and then more trouble still to keep it pure, what inducement can it be for small fry like myself to think of Italianizing my "natives?" I am only left to the *cruel* mercy of the hybrids, which they tell us is something like the hate of an Indian: once get him mad at you and he is sure never to forget the injury. But the strangest thing of all is that these men with such assertions can persuade other to buy. Will some one come to the rescue?

B. S. HOXIE.

COOKSVILLE, WISCONSIN, Sept. 20, 1867.

For the American Bee Journal.

Wasting Wax, Hives, Red Clover, &c.

MR. EDITOR: Mr. Quinby says that bees, *when constructing comb are constantly wasting wax, the quantity often amounts to a handful or more, &c.* (See his "Mysteries of Bee-Keeping Explained," pages 251 and 252.) I used to think that it was necessary for the bees to waste considerable wax in constructing their combs; but for the last six years I have known better. If you have the bees in the right kind of hive, and ventilated just right, they will not waste one particle. While they are building comb, it is necessary that they should be kept in as small a compass as possible, in order to keep up sufficient heat to work the wax; and then there is none lost. For this purpose, I find a division board indispensable. Mr. Quinby's two story bee-house on page 111, looks nice in a picture, but in practice the upper story is good for nothing for bees. I tried that plan sixteen years ago, and so know just how it works. Again, he says that some hives will do well, and others standing by their side yield no profit. I must confess that I was greatly disappointed on reading his late work. I expected that it would be fully up to the times. Why did he not tell us how to remedy this and make all swarms equally prosperous? Well, Mr. Quinby will probably say that it is easy enough to criticise; but let Gallup write a better book. I could not possibly do it, because I am no scholar. But let every one try to make the BEE JOURNAL the best source of information on the bee question.

Mr. J. L. McCune wants to know if ever any one had bees to work freely on red clover. Yes: in some seasons the blossom is shorter than in others. I recollect four different seasons in my experience that the common black bees worked very freely on it, and gathered large quantities of honey. At other times the blossom is so long that neither black bees nor Italians can gather honey from it.

Mr. S. C. Wilson's difficulty can be overcome by using boxes large enough to contain a full frame, or a close-fitting division board in his full-sized hive, with bees enough to occupy the full frames. Small boxes are a perfect nuisance any way.

ELISHA GALLUP.

OSAGE, IOWA.

[For the American Bee Journal]

Foulbrood.

Foulbrood made its appearance in my apiary ten years ago. Five years ago I let my bees run out on this account, and procured others free from disease. Since then my bees remained unaffected, till since they have gathered from the pine this season, and I now find one-fifth are tainted with foulbrood. Is not this strong evidence that this disease originated from the fluid collected by the bees from the insects on the pine?

I used to hold the idea that foulbrood was of recent origin in this section. But on inquiry among old bee-keepers, I find that they lost stocks many years ago; and from the symptoms they gave me, I have reason to believe that it was from foulbrood. From this and other information, I have come to the conclusion that foulbrood existed in this section from the same inciting cause ever since the bee was introduced, though the fact was not brought into public notice. Ignorant bee-keepers may lose all their stocks from this disease and be unaware of the fact—attributing the injury to the inroads of the moth.

R. B. OLDT.

NEW BERLIN, PA.

A northern man who recently emigrated to Jefferson county, in the lower Valley of Virginia, made 1,500 pounds of honey from 50 bee stands last summer, which he sold for $450.

SEND us the names of Bee-keepers, with their Post Office address.